



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,088	12/02/2003	Reed J. Blau	2507-6010US (22031-US)	6016
60794	7590	11/17/2006	EXAMINER	
TRASKBRITT, P.C./ ALLIANT TECH SYSTEMS P.O. BOX 2550 SALT LAKE CITY, UT 84110			HWU, DAVIS D	
		ART UNIT	PAPER NUMBER	
		3752		

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/727,088	BLAU ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Davis D. Hwu	3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 September 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-16 and 18-90 is/are pending in the application.
- 4a) Of the above claim(s) 29,30 and 83-90 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16, 18-28 and 31-82 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/11/06, 8/14/06.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**Response to Amendment**

1. Applicant's amendment and arguments of September 25, 2006 have been entered.
2. The restriction of claims 26-28 and 31-56 is withdrawn.
3. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

4. Claims 1-10, 13, 14, 18, 23-25, 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Drakin.

Drakin shows a fire suppression system comprising a gas generant 20 formulated to pyrotechnically produce an inert gas mixture substantially free of carbon-containing gases, a heat management system position and configured to reduce a temperature of the inert gas mixture, and an igniter 22, wherein the gas generant is formulated to produce at least one gaseous combination product and at least one solid combustion product when combusted as recited in claim 4.

***Claim Rejections - 35 USC § 103***

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Ludwig et al.

Ludwig et al. teaches an inert gas comprising nitrogen and water (Column 12, lines 27). It would have been obvious to one having ordinary skill in the art at the time the

invention was made to have made the inert gas mixture comprising nitrogen and water since Ludwig et al. teaches that such compositions are known in the art.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Lundstrom et al.

Lundstrom et al. teach a gas generant comprising an oxidizer, a fuel, and a binder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Drakin by having the gas generant comprising an oxidizer, a fuel, and a binder since Lundstrom et al. teach that such combinations are known.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin et al. in view of Taylor et al. and Moore et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Moore et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Drakin comprising a combination of the elements as taught by Taylor et al. and Moore et al. since Taylor et al. and Moore et al. teach such elements for forming a gas generant are known in the art and the combination of these elements would properly form a gas generant.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Taylor et al. and Hinshaw et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate and

Art Unit: 3752

polyacrylamide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Drakin comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for forming a gas generant are known in the art and the combination of these elements would properly form a gas generant.

9. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Knowlton et al.

Knowlton et al. teaches a gas generant comprising a phase change material including lithium nitrate, sodium nitrate, and potassium nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included into the gas generant of Drakin a phase change material comprising the various nitrates as recited in order to manage the heat.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin. The limitations of claim 22 would have been matters of design choice depending on the systems requirements for a particular application.

11. Claims 26-28, 31-42, 45, 48, 49, 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin

Drakin also discloses the heat management comprising an effluent train. The gas generant being configured into at least one pellet would have been an obvious matter of design choice since such a modification would involve a mere change in the shape of an object which is generally recognized as being within the level of ordinary skill in the

art. Regarding claim 37, the percentage as recited would have been a matter of design choice in producing a safe concentration of the substances.

12. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Ludwig et al.

Ludwig et al. teaches an inert gas comprising nitrogen and water (Column 12, lines 27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the inert gas mixture comprising nitrogen and water since Ludwig et al. teaches that such compositions are known in the art.

13. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Lundstrom et al.

Lundstrom et al. teach a gas generant comprising an oxidizer, a fuel, and a binder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Drakin by having the gas generant comprising an oxidizer, a fuel, and a binder since Lundstrom et al. teach that such combinations are known.

14. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin et al. in view of Taylor et al. and Moore et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Moore et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Drakin comprising a combination of the elements as taught by Taylor et al. and Moore et al. since Taylor et al. and Moore et al.

Art Unit: 3752

teach such elements for forming a gas generant are known in the art and the combination of these elements would properly form a gas generant.

15. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Taylor et al. and Hinshaw et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate and polyacrylamide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Drakin comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for forming a gas generant are known in the art and the combination of these elements would properly form a gas generant.

16. Claims 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drakin in view of Knowlton et al.

Knowlton et al. teaches a gas generant comprising a phase change material including lithium nitrate, sodium nitrate, and potassium nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included into the gas generant of Drakin a phase change material comprising the various nitrates as recited in order to manage the heat.

17. Claims 57-65 and 72-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig et al. in view of Lundstrom et al.

Ludwig et al. shows a gas generant formulated to pyrotechnically produce an inert gas mixture and a heat management system to ignite the gas generant in which the gas

generant can be used in a fire suppression system. The device further comprises an igniter composition to produce heat to ignite the gas generant and produce at least one gaseous combustion produce and at least one solid combustion product when combusted, wherein the amount of particulates or solid combustion product is minimal (Column 11, lines 29-59). Lundstrom et al. teaches a pyrotechnic gas generant comprising a scavenger to remove undesirable combustion products (Column 5, lines 58-63) and gas generant compositions which comprise slag formers which produce slag as a combustion product as recited in claim 10. Lundstrom et al. also teaches a gas generant comprising an oxidizer, a fuel, and a binder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Ludwig et al. by incorporation into the device a scavenger as taught by Lundstrom et al. to remove various undesirable combustion products. The inert gas mixture of Ludwig et al. comprises nitrogen and water (Column 12, lines 27). The device of Ludwig et al. and Lundstrom et al. is capable of carrying out the recited methods. The limitations of claim 62 would have been matters of design choice depending on the systems requirements for a particular application.

19. Claims 66-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig et al. in view of Lundstrom et al. as applied to claim 65 above, and further in view of Knowlton et al.

Knowlton et al. teaches a gas generant in which the igniter comprises boron and potassium nitrate to safely initiate combustion of the gas generant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

have modified the device of Ludwig et al. and Lundstrom et al. by making the igniter comprising boron and potassium nitrate as taught by Knowlton et al. to safely initiate combustion of the gas generant. The amounts of the elements as recited would have been matters of design choice.

20. Claims 70 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig et al. in view of Lundstrom et al. and further in view of Taylor et al. and Hinshaw et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate and polyacrylamide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Ludwig et al. and Lundstrom et al. comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for forming a gas generant are known in the art and the combination of these elements would properly form a gas generant.

### ***Conclusion***

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patent to Cohrt et al. is pertinent to Applicant's invention.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davis D. Hwu whose telephone number is 571-272-4904. The examiner can normally be reached on 8:00-4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



DAVIS HWU  
PRIMARY EXAMINER